Preliminary Plan for ESPA CAMP Modeling Scenario

ESPA CAMP Meeting

November 15, 2007

Burley, Idaho

Brian Patton
Idaho Department of Water Resources

ESPA CAMP Modeling Scenario

- Assignment from the CAMP Subcommittee was to evaluate the reach gain and water level changes from a 600KAF – 900KAF change in the ESPA water budget.
- Because the effects differ depending on what actions are used, and where they occur, we had to make a number of assumptions regarding actions and locations.

ESPA CAMP Modeling Scenario

- The following is a preliminary plan meant to begin the discussion and analysis of options to change the ESPA water budget.
- This plan outlines one combination of management options that achieves a change of 900KAF. There may be other alternatives not shown, or they may be applied in different combinations than shown here.

A&B Conversion

- Convert A&B Irrigation District to a surface water supply. This would remove 60,000 acres from ground water pumping.
- Water would be supplied from the High-Lift exchange and new storage.
- Would require new delivery infrastructure.

Managed Recharge

- Utilize the Water Board's recharge water right, assuming a resolution to the Milner Hydro Permit or a negotiated settlement with permit holders.
- Split available flow between upstream and downstream of American Falls based on water availability and water right constraints.

Managed Recharge Below American Falls

- Utilize full diversionary capacity of Northside and Milner-Gooding canals after March 1st, in excess of irrigation deliveries and when the IWRB natural flow water right is in priority.
- Assume all water diverted for recharge can be recharged. This will require significant new construction.

Managed Recharge Above American Falls

- Utilize full diversionary capacity of Aberdeen-Springfield, Egin Bench and other canals after March 15th, in excess of irrigation deliveries and when the IWRB natural flow water right is in priority.
- Assume all water diverted for recharge can be recharged. This will require significant new construction.

CREP

- Assume modifications and incentives to CREP to achieve the full 100,000 acre enrollment limit.

Soft Conversions

- Opportunistically pursue soft conversion projects where excess water exists, canal capacity to mixes-source lands exists, and timing allows.

Remaining Measures

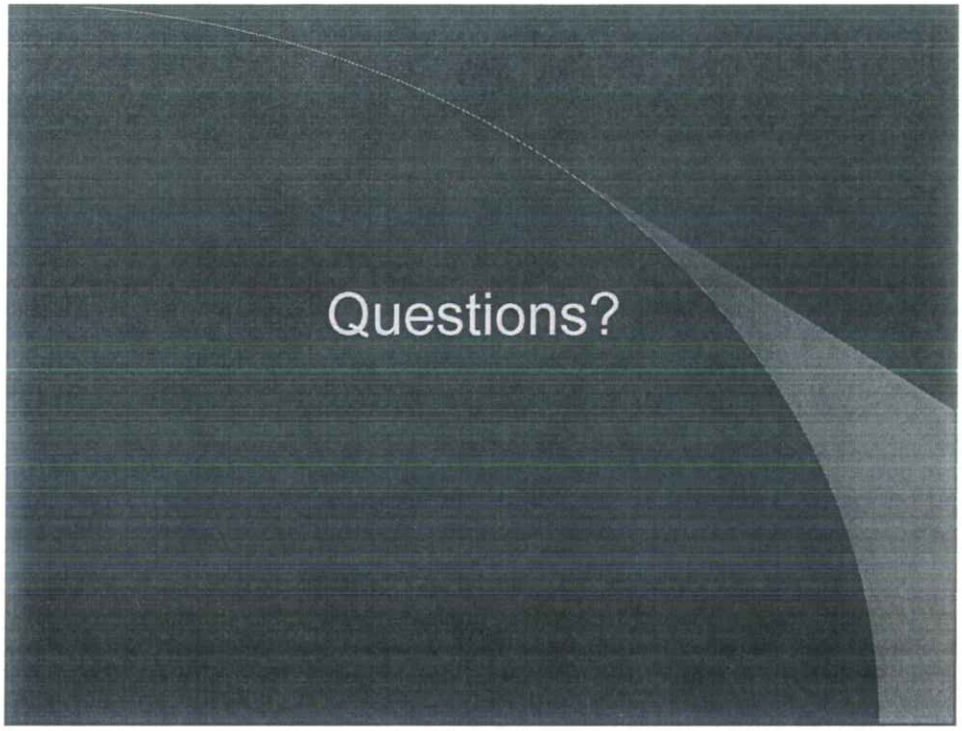
- Assume any remaining shortfall in water budget change will be accomplished through reduced pumping through voluntary measures such as buy-outs, dry-year leases, or other similar measures.

New Storage

- Assume the construction of 50 KAF of new storage through the Minidoka enlargement, or through off-stream sites below American Falls. This water would be needed to achieve the A&B conversion.
- Begin evaluating 300 KAF of new storage above American Falls, but because this would be several decades to completion, it is not included in this modeling exercise.

Salmon Flow Exchange

- Assume all available salmon flow augmentation water released from Upper Snake storage is exchanged for use on the Snake River Plain. This is needed for both the A&B conversion and for soft conversions.
- The salmon flow would be replaced with water from below-Milner sources, such as high-lift buyouts or new storage in southwest Idaho.

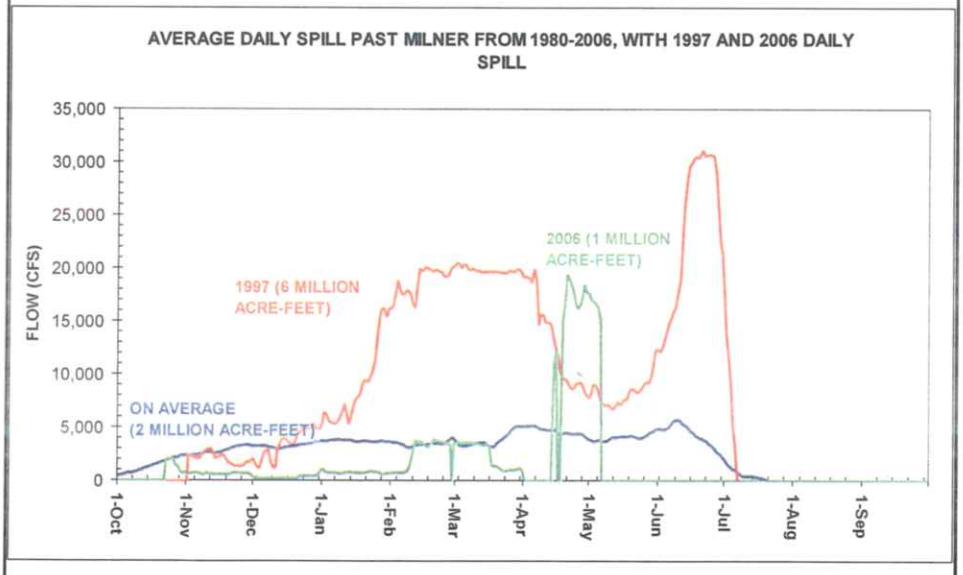

Questions?

Timing and Availability of Flows Spilling Past Milner Dam

ESPA CAMP Meeting

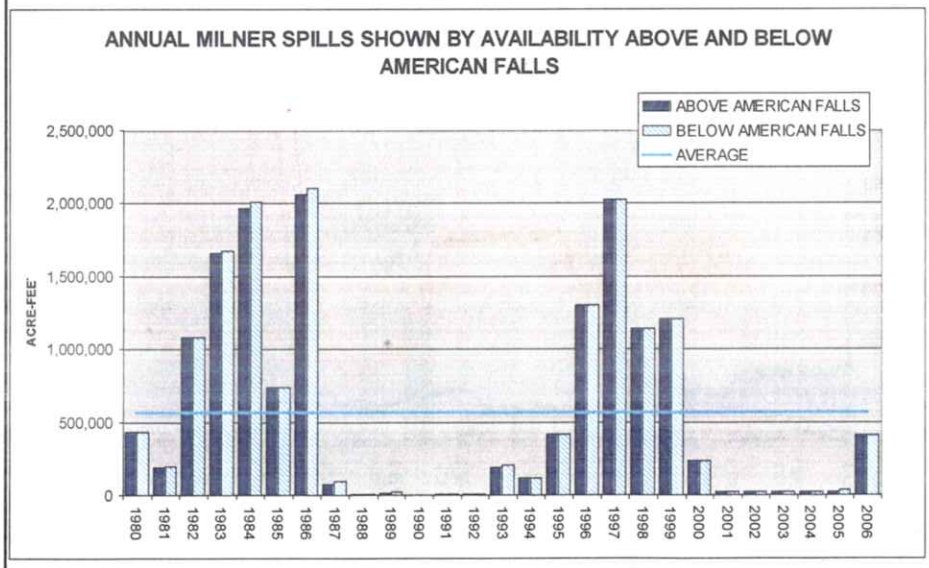
Steve Burrell

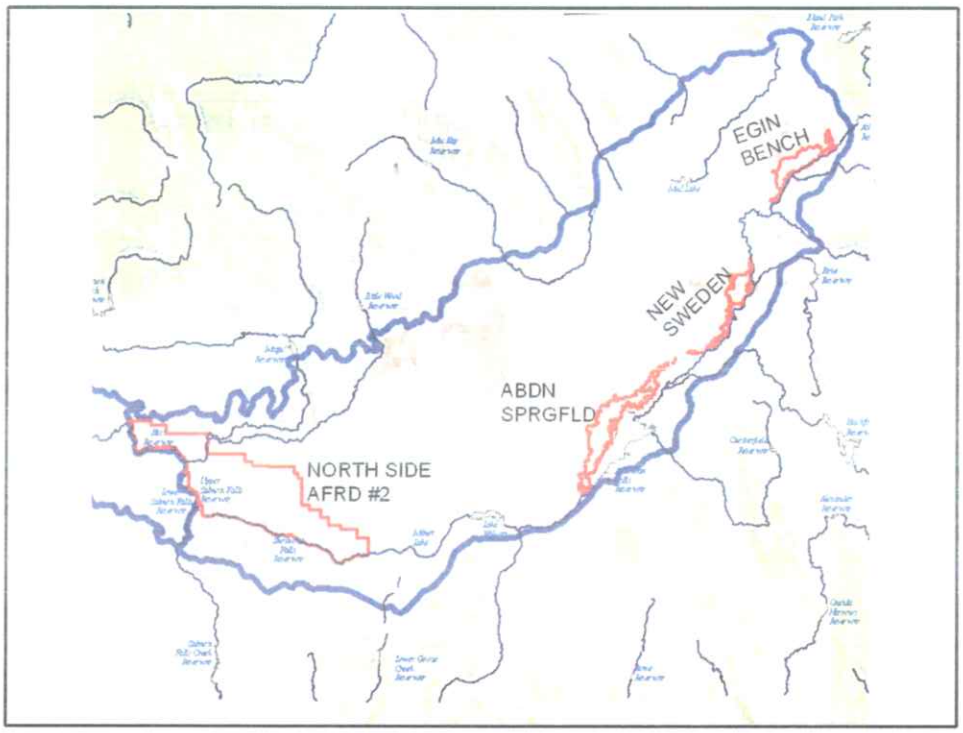
Idaho Department of Water Resources

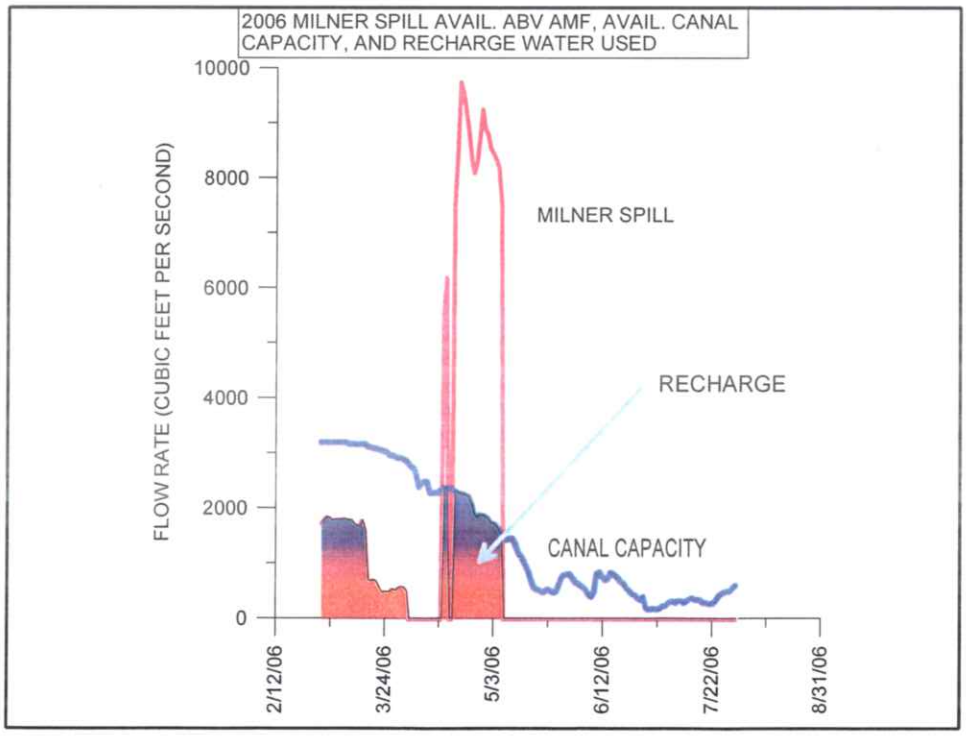


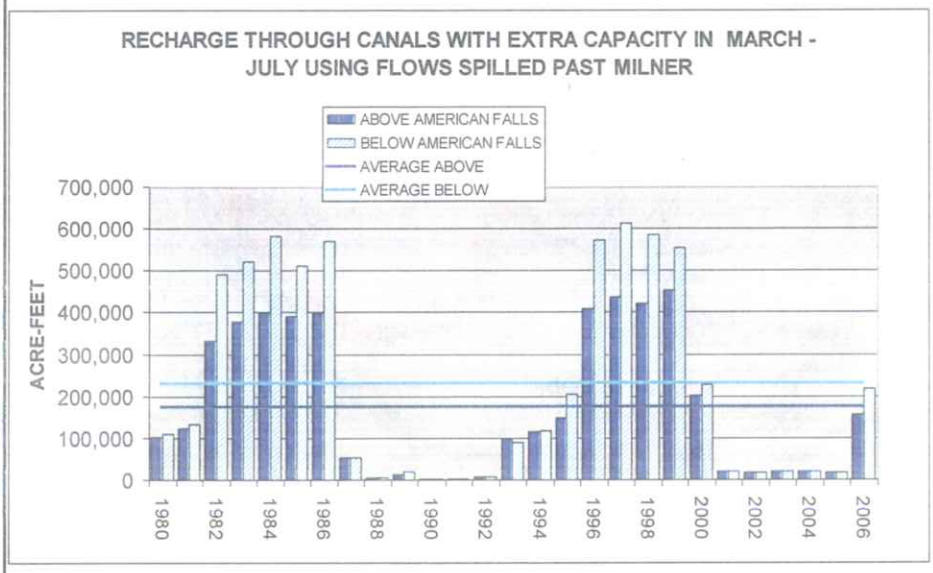
SPILLED MILNER WATER TARGETTED USES

- MANAGED RECHARGE THROUGH CANALS
  - Above American Falls
    - Egin Bench
    - New Sweden
    - Aberdeen Springfield
  - Below American Falls (North Side and AFRD #2)
- HARD CONVERSIONS
  - A & B IRRIGATION DISTRICT
- SOFT CONVERSIONS
  - Lands above and below Minidoka with near-ready ability to use surface water




EGIN
BENCH
NEW
SWEDEN
ABDN
SPRGFLD
NORTH SIDE
AFRD #2


2006 MILNER SPILL AVAIL. ABV AMF, AVAIL. CANAL CAPACITY, AND RECHARGE WATER USED
FLOW RATE (CUBIC FEET PER SECOND)
10000
8000
6000
4000
2000
0
MILNER SPILL
RECHARGE
CANAL CAPACITY
2/12/06
3/24/06
5/3/06
6/12/06
7/22/06
8/31/06

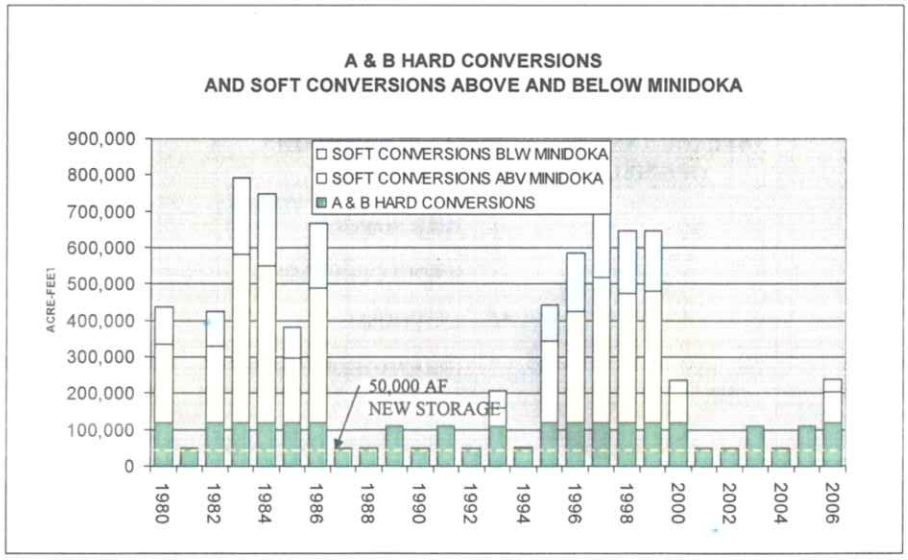


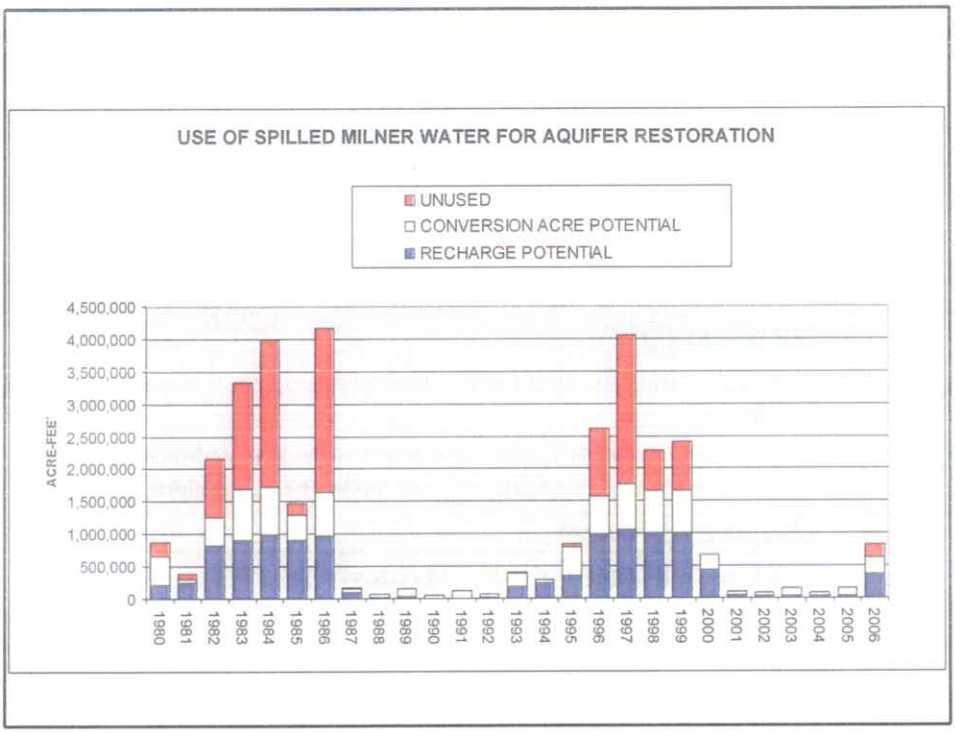
CONVERSION ACRES

- HARD CONVERSIONS (A & B IRRIG. DIST.) GETS PRIORITY
  - Water sources availability assumed all irrigation season:
    - 50,000 acre-feet of new storage at Minidoka Dam
    - Buyout of high-lift pump projects exchanged for flow augmentation water
      - Average 101,000 acre-feet per year
      - Maximum of 205,000 acre-feet per year

CONVERSION ACRES (CONT.)

- SOFT CONVERSIONS
  - Constrained by acres with access to surface water suppley
    - 2/3 of identified acres are above Minidoka, 1/3 are below
      - Use demand of 2300 cubic ft. per second above Minidoka
      - Demand of 1100 cubic ft. per second below Minidoka
  - Sources of water:
    - Unused Milner spills in May and June
    - Unused high-lift exchange water in July through September




USE OF SPILLED MILNER WATER FOR AQUIFER RESTORATION
UNUSED
CONVERSION ACRE POTENTIAL
RECHARGE POTENTIAL
ACRE-FEE
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
1980
1981
1982
1983
1984
1985
1986
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1998
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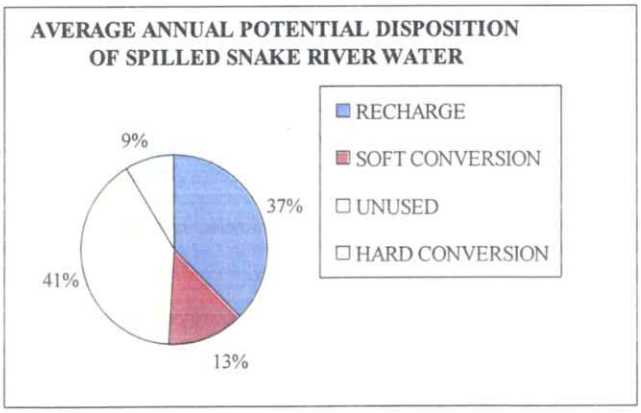
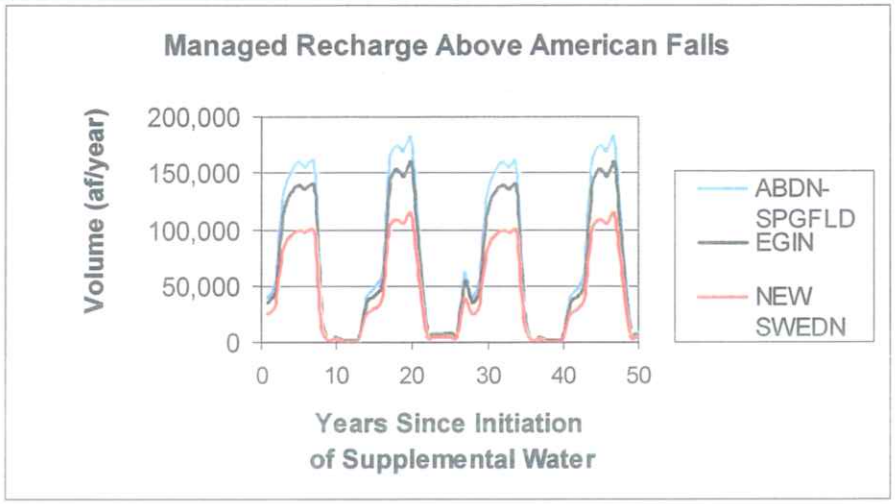
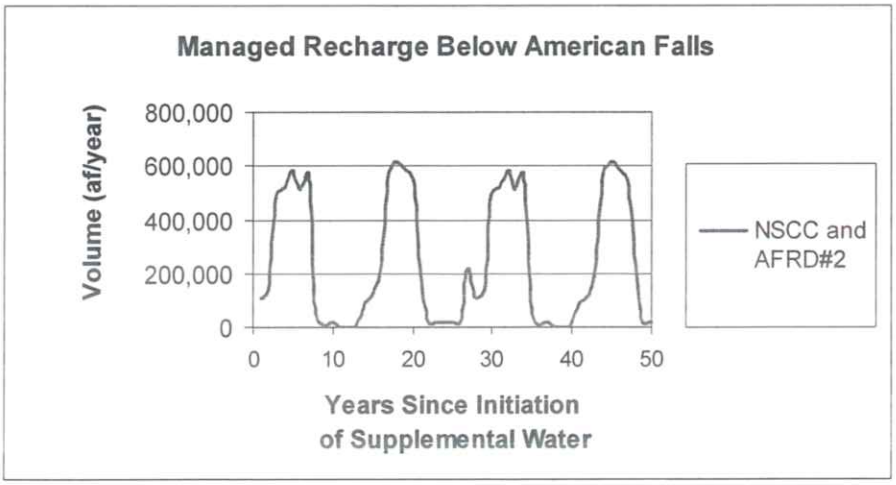
2001
2002
2003
2004
2005
2006


AVERAGE ANNUAL POTENTIAL DISPOSITION
OF SPILLED SNAKE RIVER WATER
RECHARGE
SOFT CONVERSION
UNUSED
HARD CONVERSION
9%
37%
41%
13%

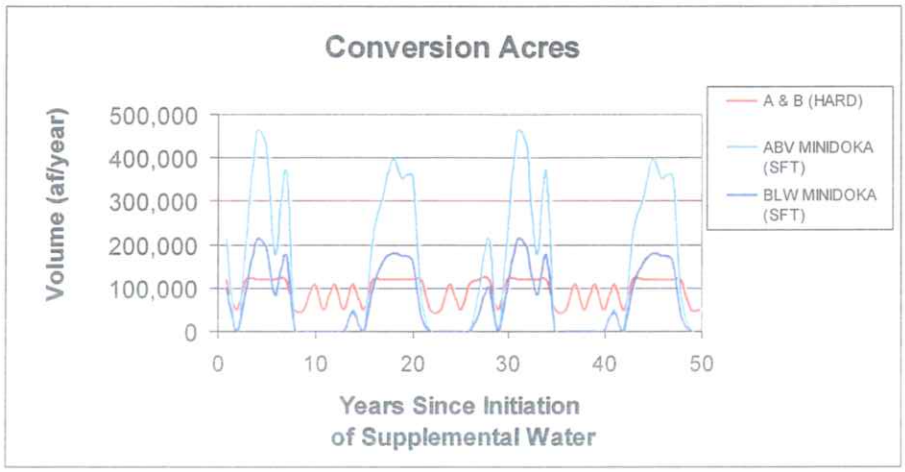


Averages:

Aberdeen-Springfield:	70,315 af/year
Egin Bench:	61,526
New Sweden:	43,947
Total:	175,789



Average: 232,989 af/year



Averages:

A & B (HARD:	94,815 af/year
ABV MINIDOKA :	137,786
BLW MINIDOKA:	65,327
Total:	297,928

(End)

CAMP November 15, 2007

Allan Wylie
IDWR

Assumptions

- 1980 to present is best estimate of future conditions
  - Repeat past 22 years
- Limited only by water availability and canal capacity
  - If we can get water to recharge site, we can recharge it
  - If we can get water to conversion site, farmer will use it

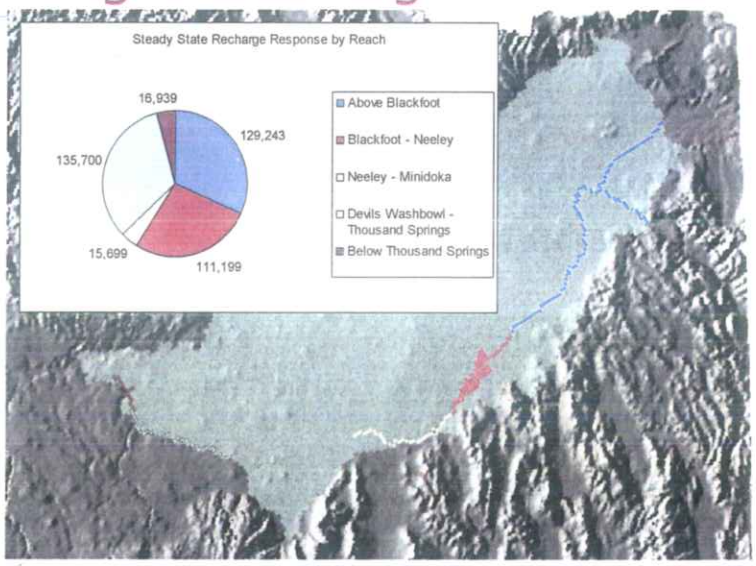
Outline

- Managed Recharge
- Hard Conversions
  - Converting lands without a surface water right to surface water
- Soft Conversions
  - Providing lands with both surface and ground water rights more surface water
- CREP
  - Interpret this as any reduction in depletions
- Summary

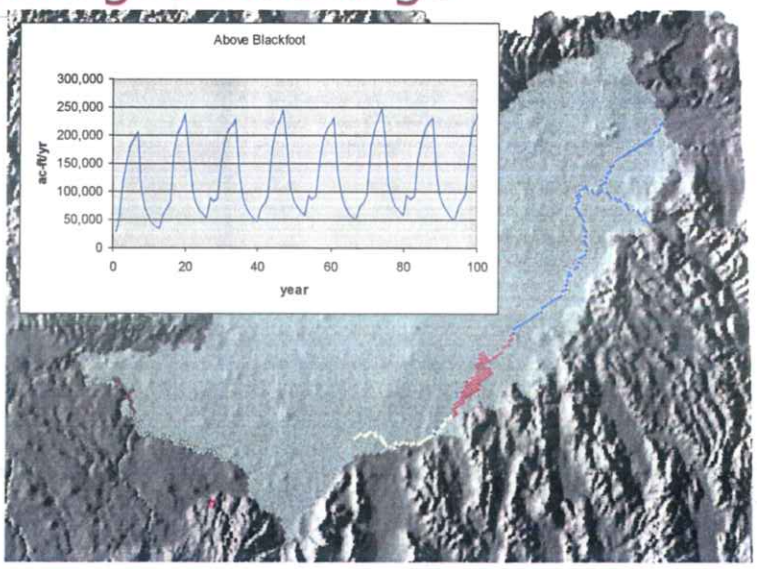
Managed Recharge

- Data from Steve identifies water available above and below American Falls
- Apportion between recharge sites based on canal capacity
  - On average 408,781 ac-ft available
  - More available some years than others

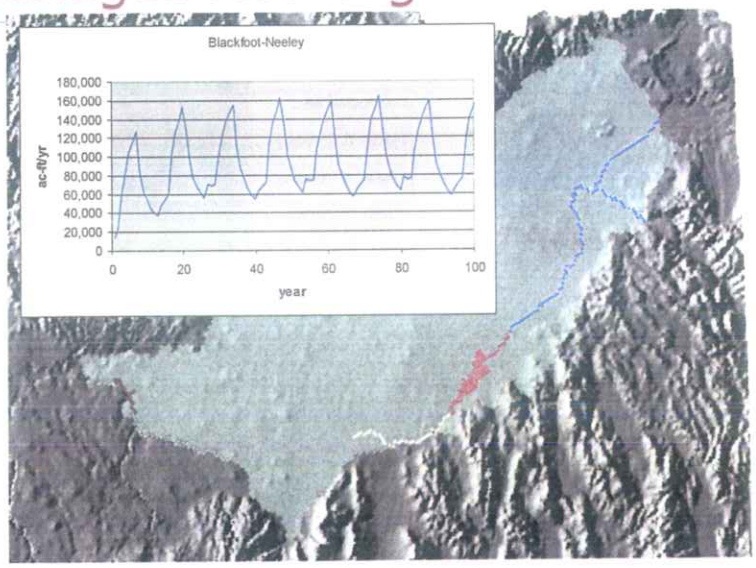
Managed Recharge



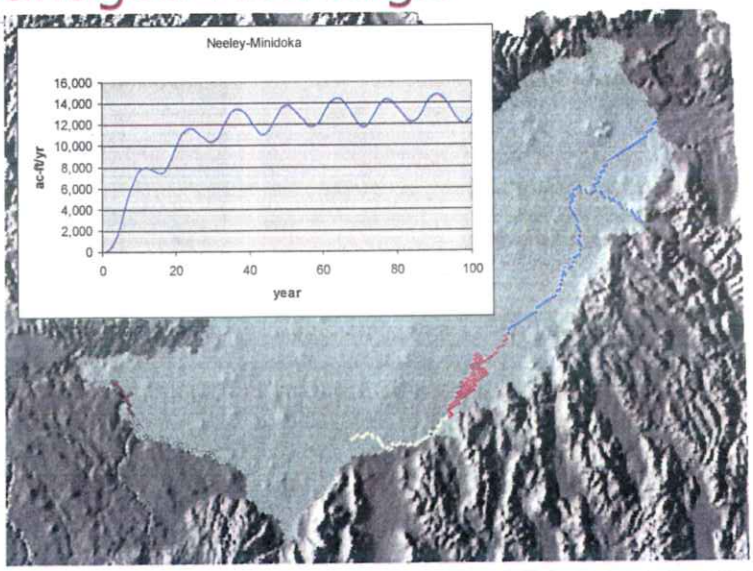
Managed Recharge



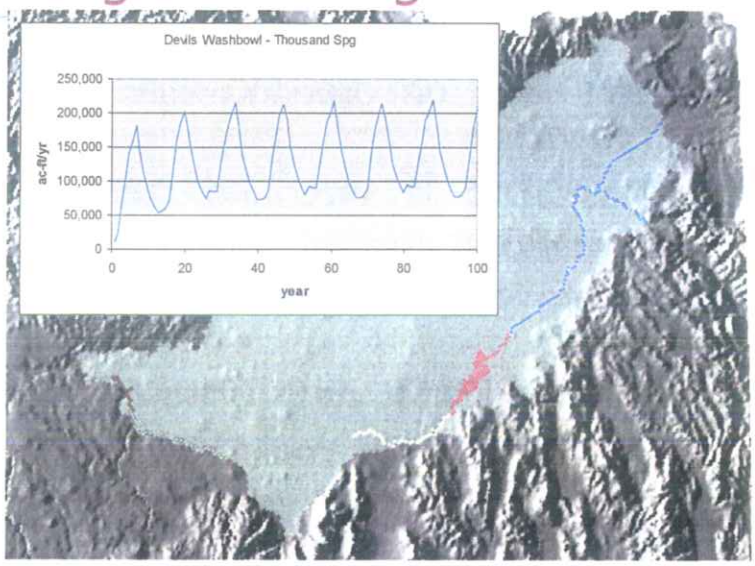
Managed Recharge



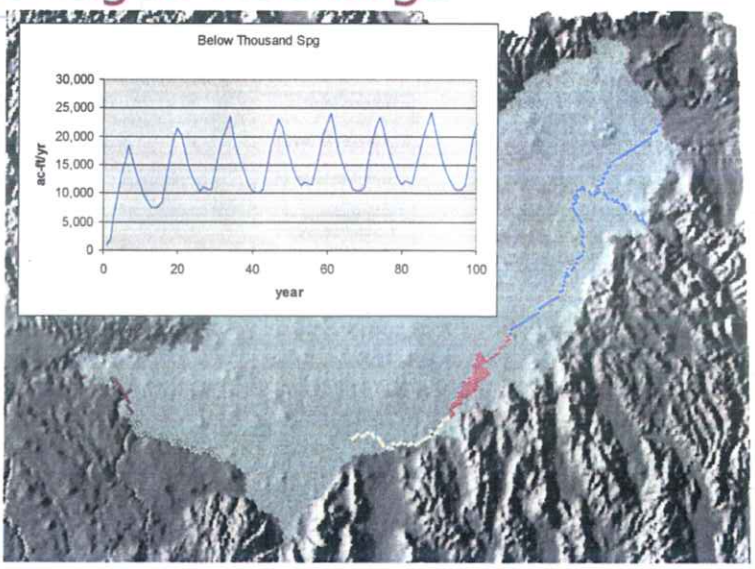
Managed Recharge



Managed Recharge



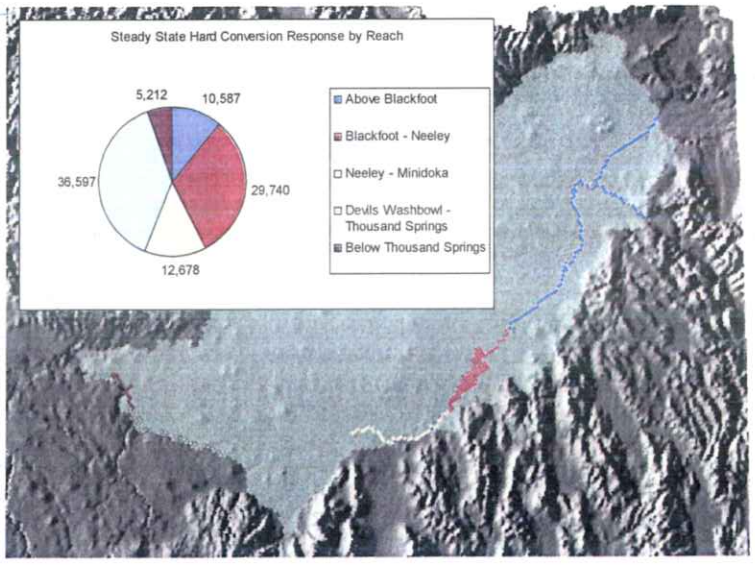
Managed Recharge



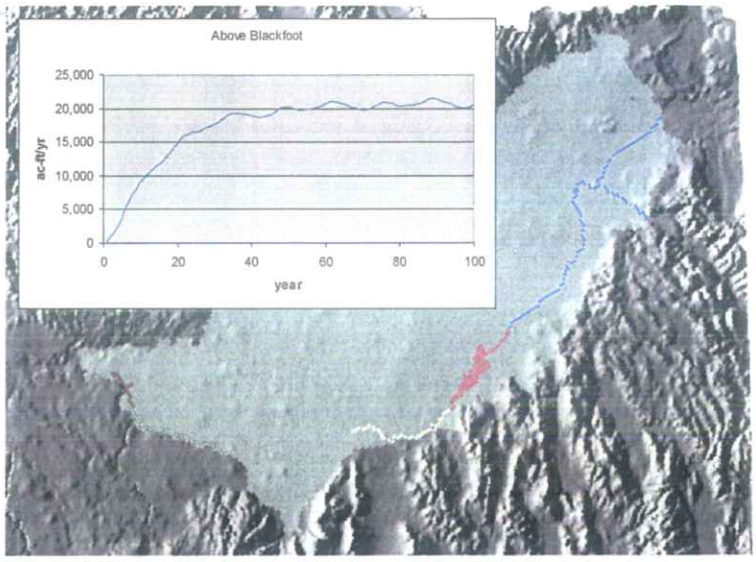
Hard Conversions

- Convert A&B from ground water to surface water
- Purchase high lift water and transfer
  - Use additional storage
- Data from Steve identifies water available
  - On average 94,815 ac-ft available
  - More available some years than others

Hard Conversions



Hard Conversions



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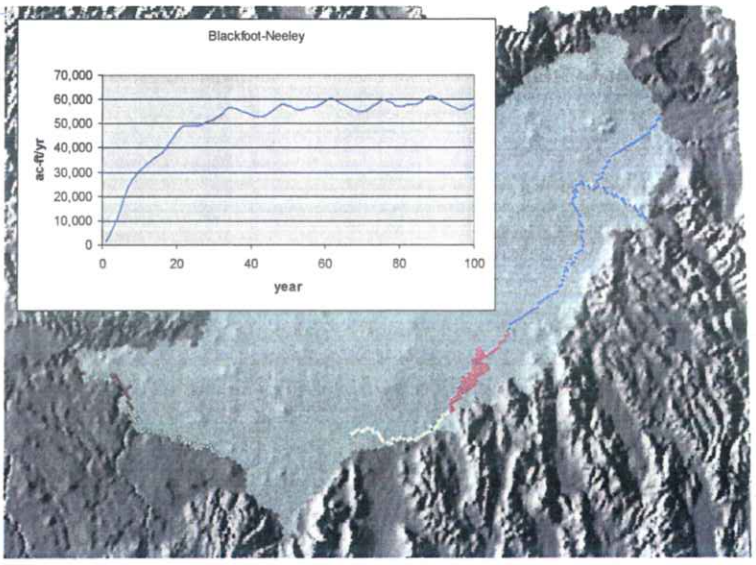
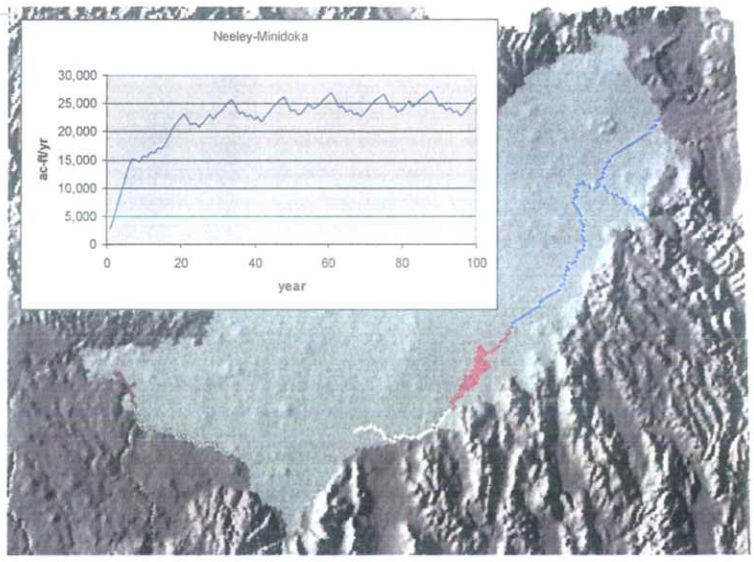


Hard Conversions



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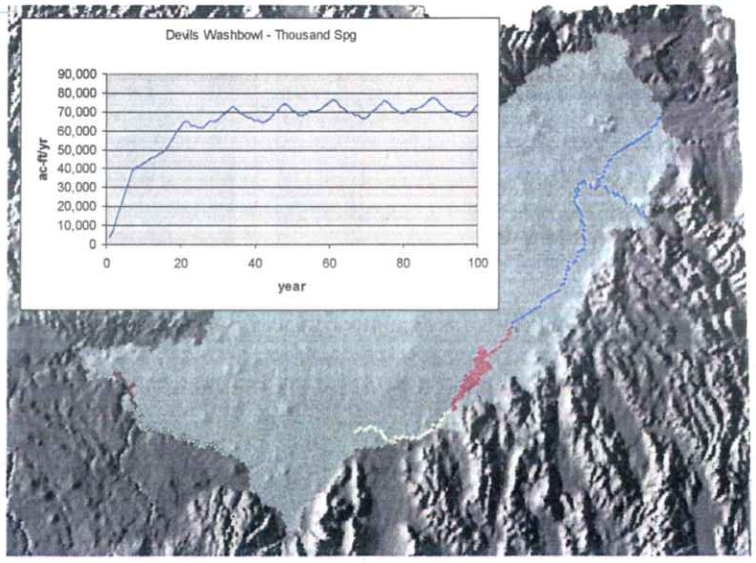
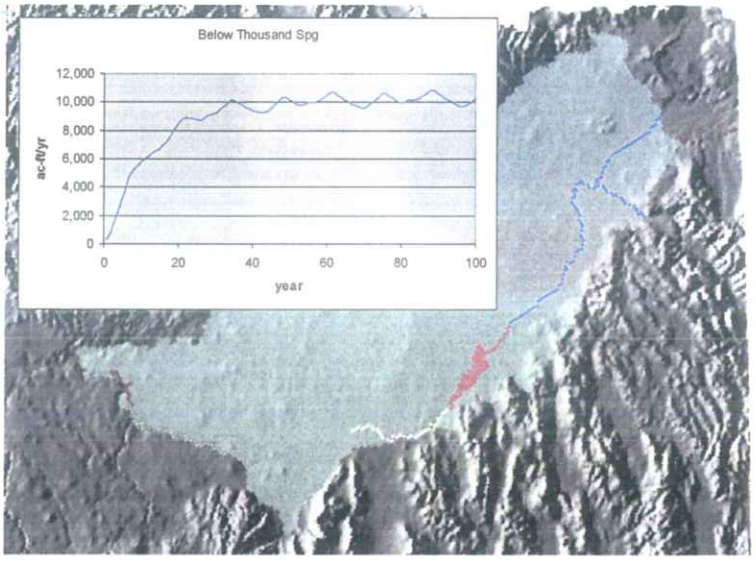


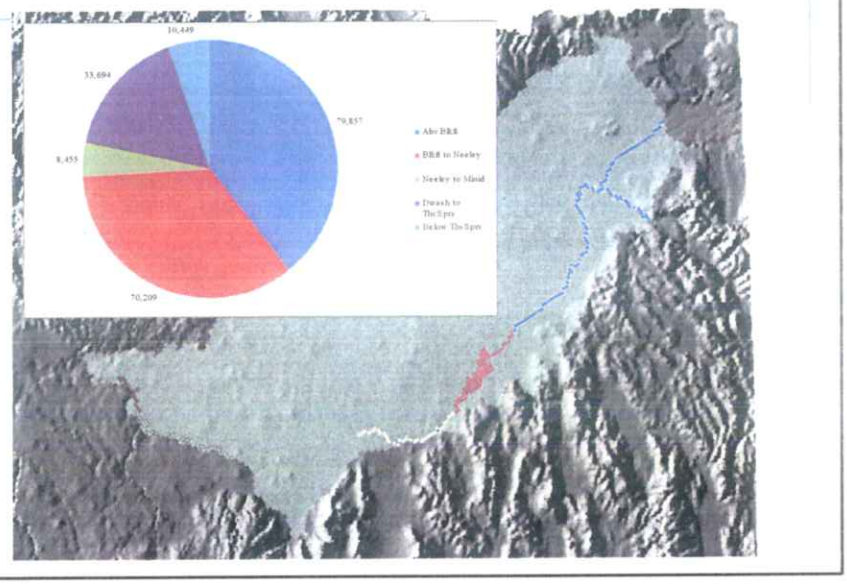
Hard Conversions



Soft Conversions

- Supply more water to mixed source lands
- Purchase high lift water and use excess recharge water
- Data from Steve identifies water available
  - On average 137,786 ac-ft available above American Falls
  - On average 65,327 ac-ft available below American Falls
    - Limited to some extent by available mixed source lands
  - More available some years than others

Soft Conversions



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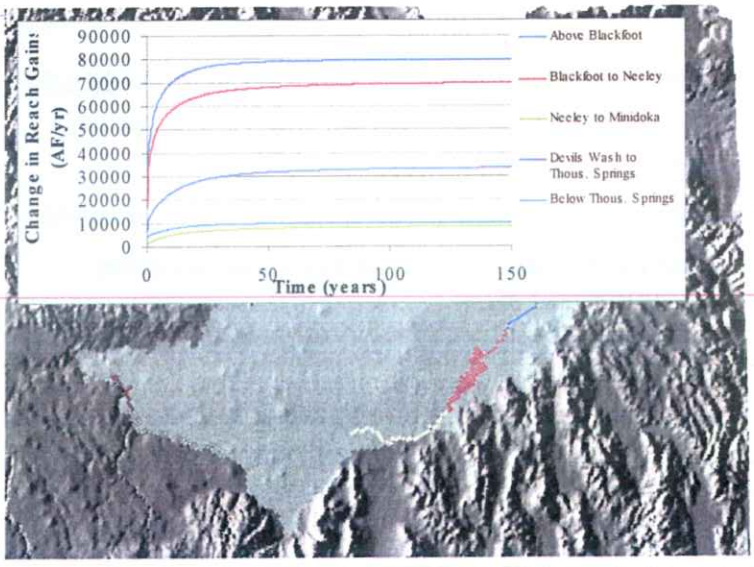
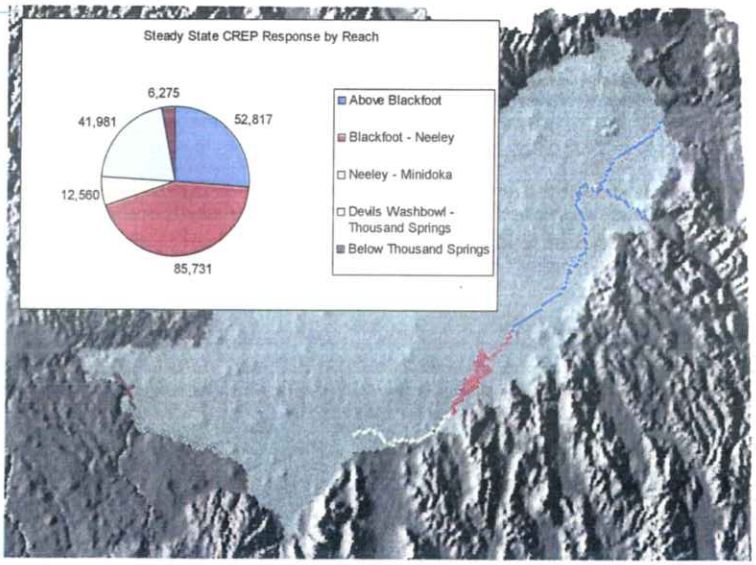


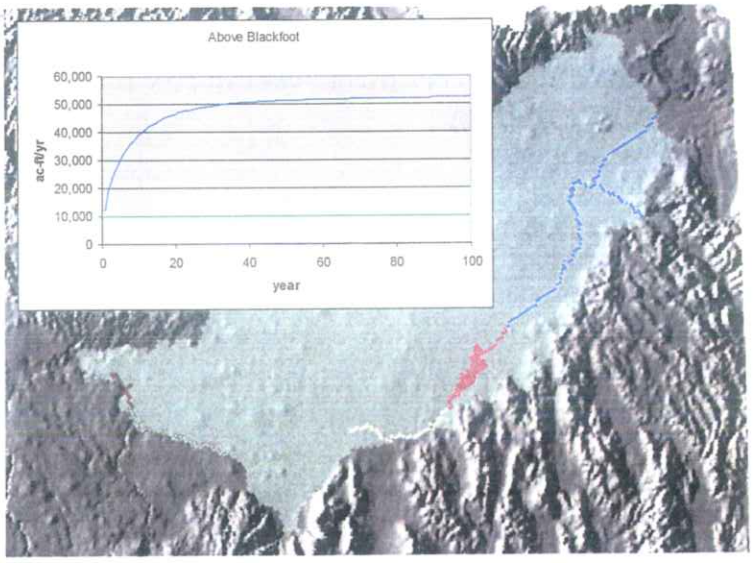
CREP Conversions

- Use current IDWR approved acres and scale up to 100,000 ac
  - Bingham - 41,906
  - Blaine – 316
  - Bonneville – 473
  - Cassia - 8,971
  - Clark - 4,672
  - Gooding - 434
  - Jefferson - 4,672
  - Jerome - 8,297
  - Lincoln - 4,678
  - Minidoka - 25,582

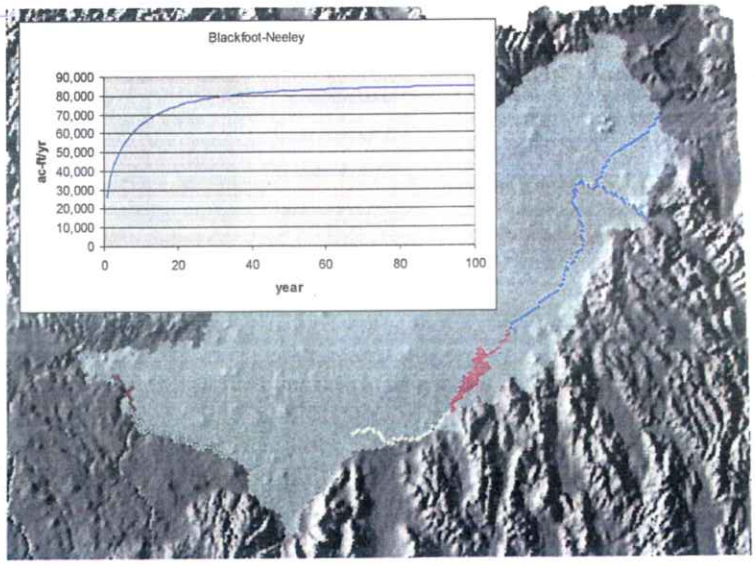
CREP Conversions



CREP Conversions



CREP Conversions



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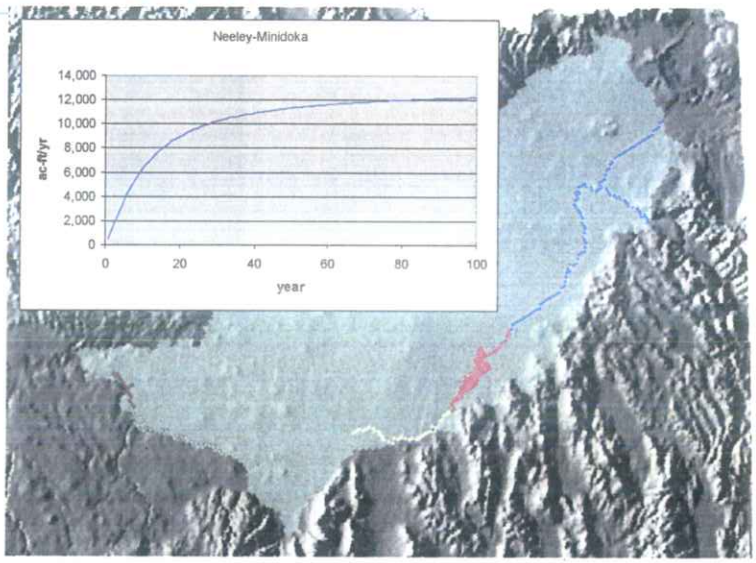

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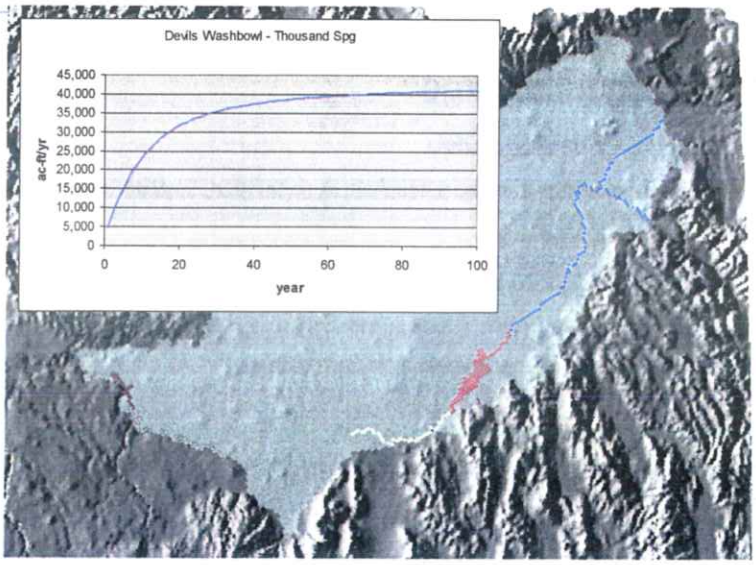
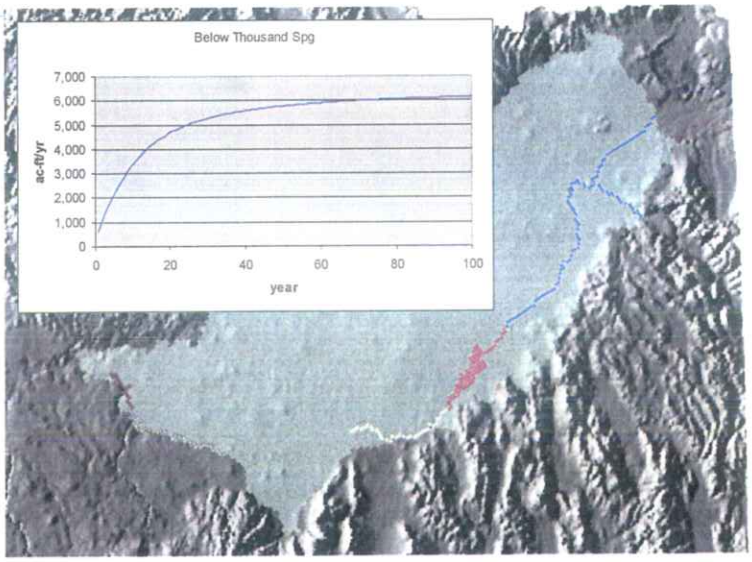


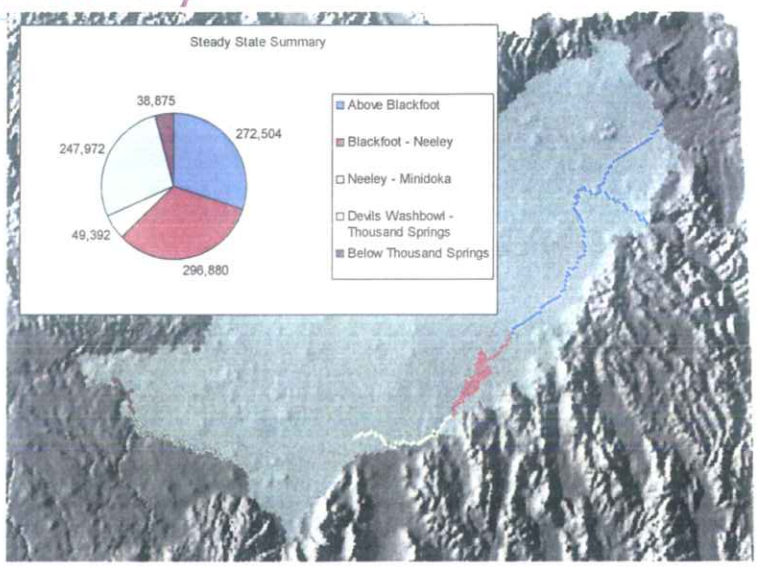
CREP Conversions



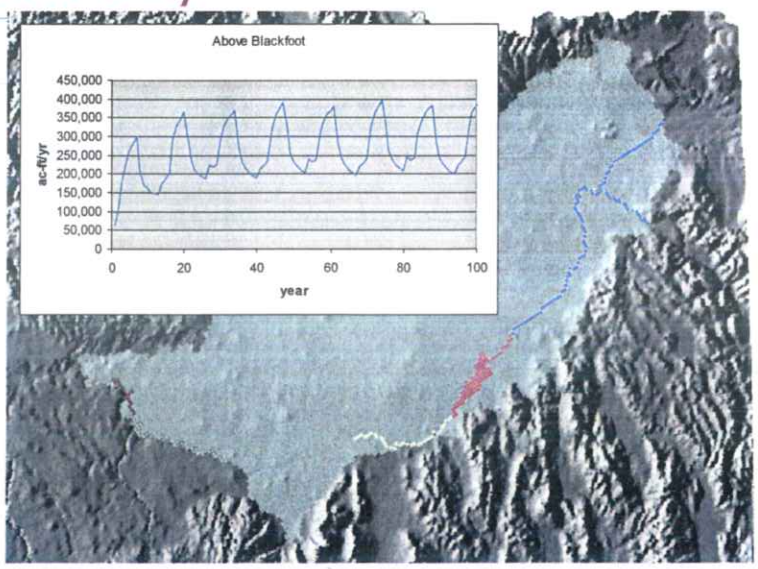
Summary

- Managed Recharge
- Hard Conversions
  - Converting lands without a surface water right to surface water
- Soft Conversions
  - Providing lands with both surface and ground water rights more surface water
- CREP
  - Interpret this as any reduction in depletions

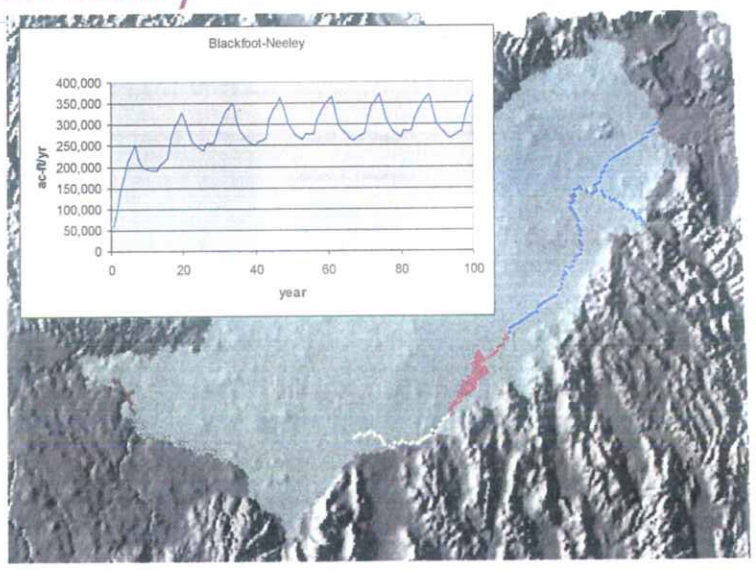
Summary



Summary



Summary



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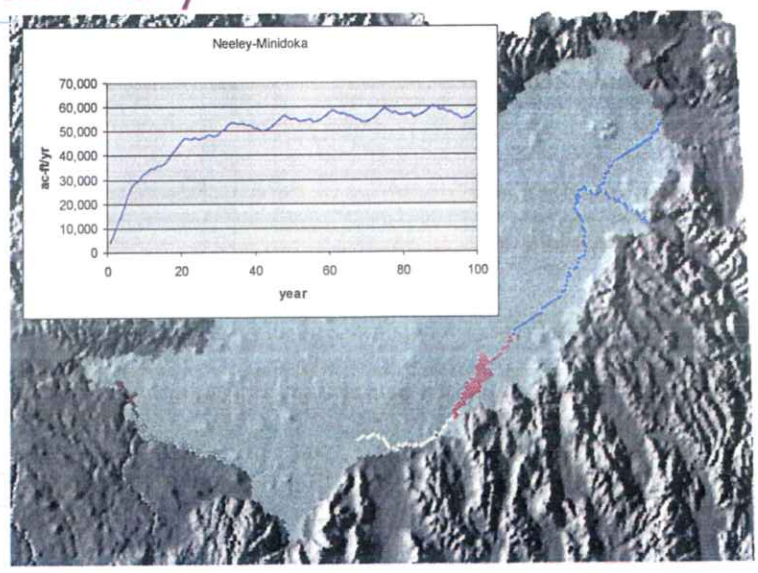
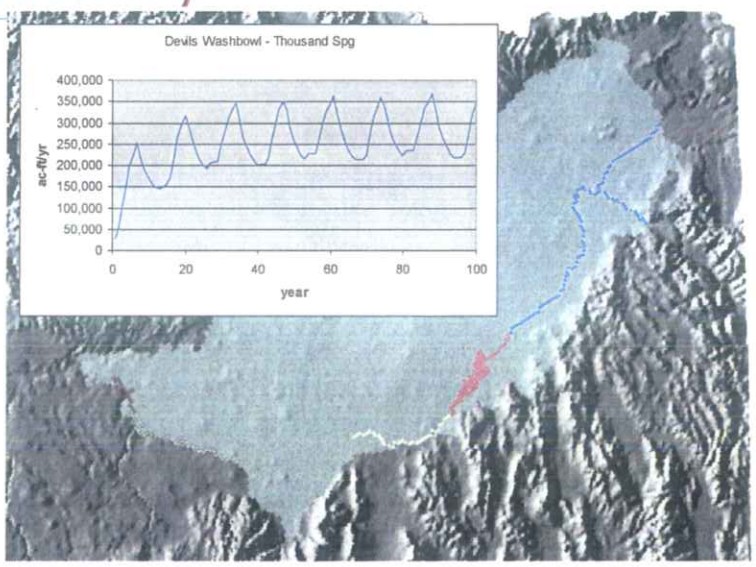
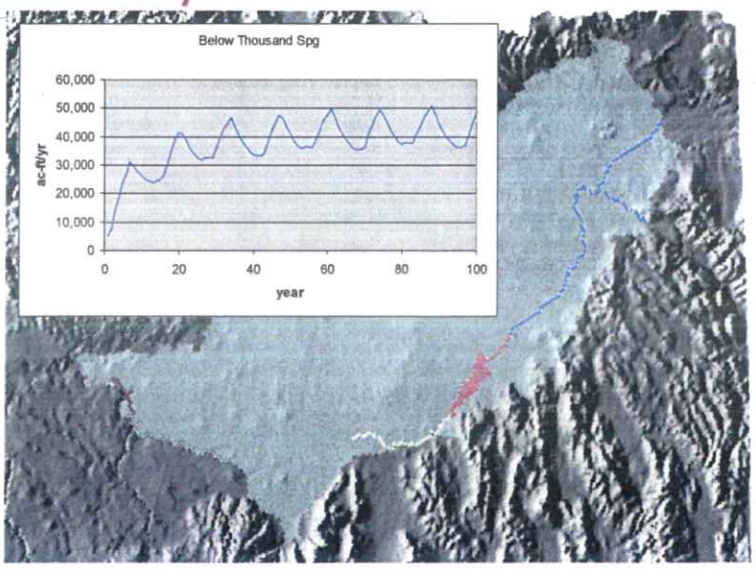


Summary



Summary



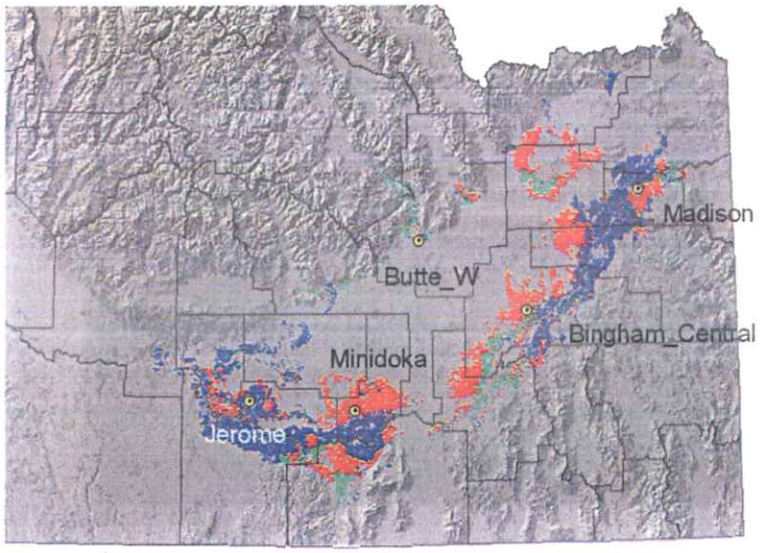
End

Water-level Impacts of Preliminary ESPA Water-budget Adjustments

Presented to
Idaho Water Resource Board
Advisory Group
15 November 2007

B. Contor

Locations of Water-level Printouts



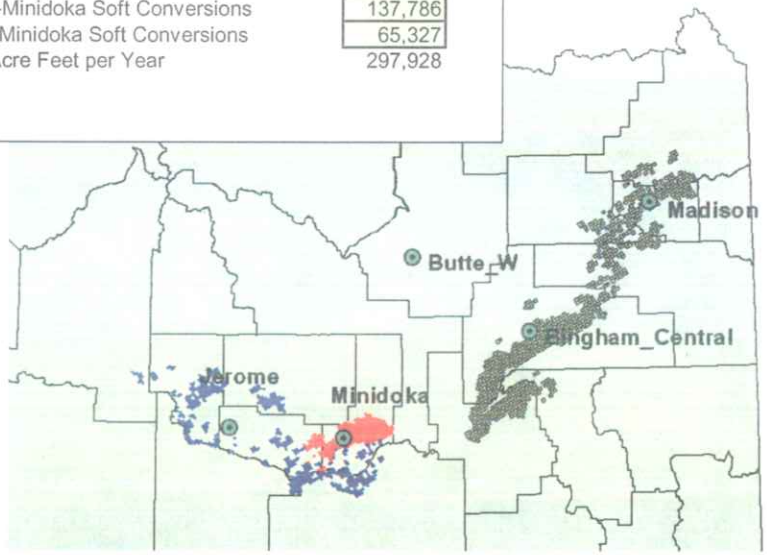
Activities

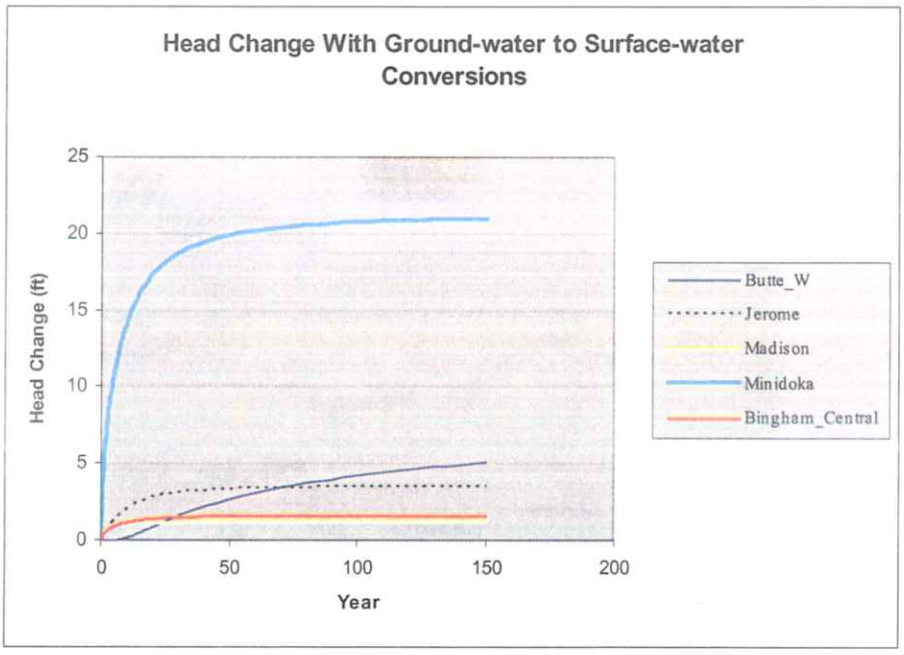
- Conversions
- Recharge
- Adjustments to net withdrawal
  - CREP
  - Buyout
  - Change in crop mix

Conversions

(IDWR photo)

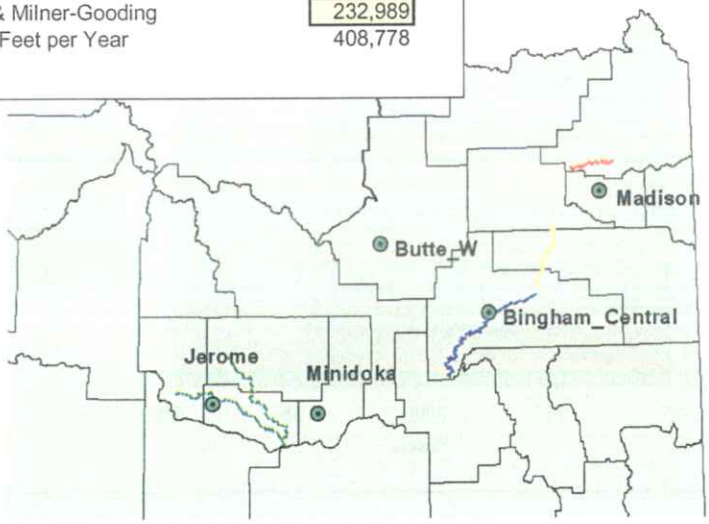
Location	Acre Feet/yr
A & B Hard Conversions	94,815
Above-Minidoka Soft Conversions	137,786
Below-Minidoka Soft Conversions	65,327
Total Acre Feet per Year	297,928

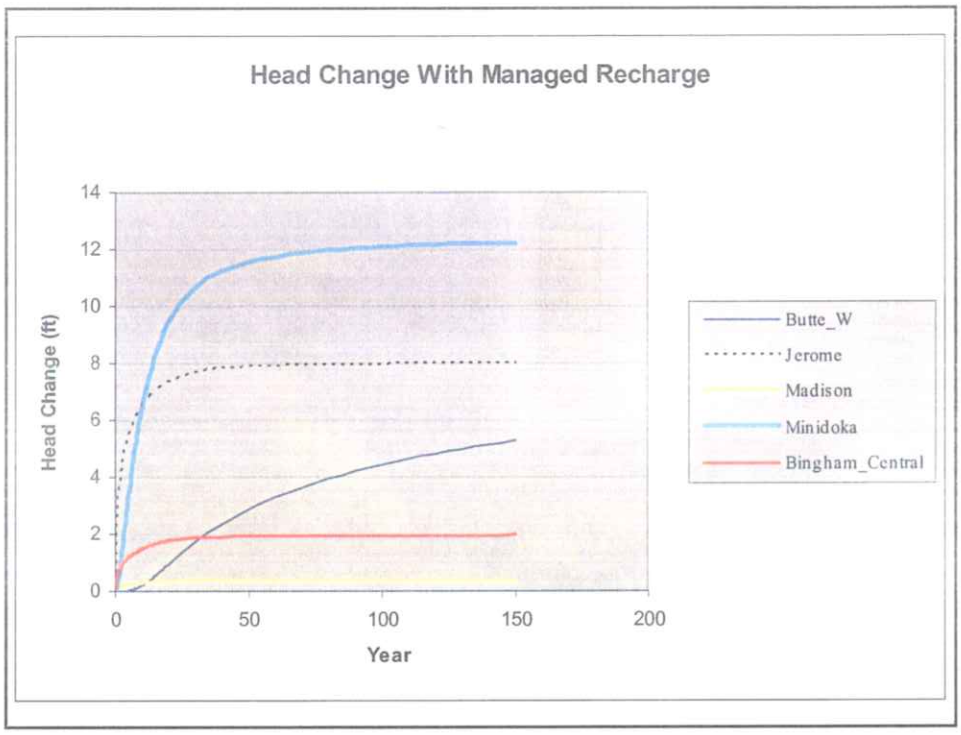


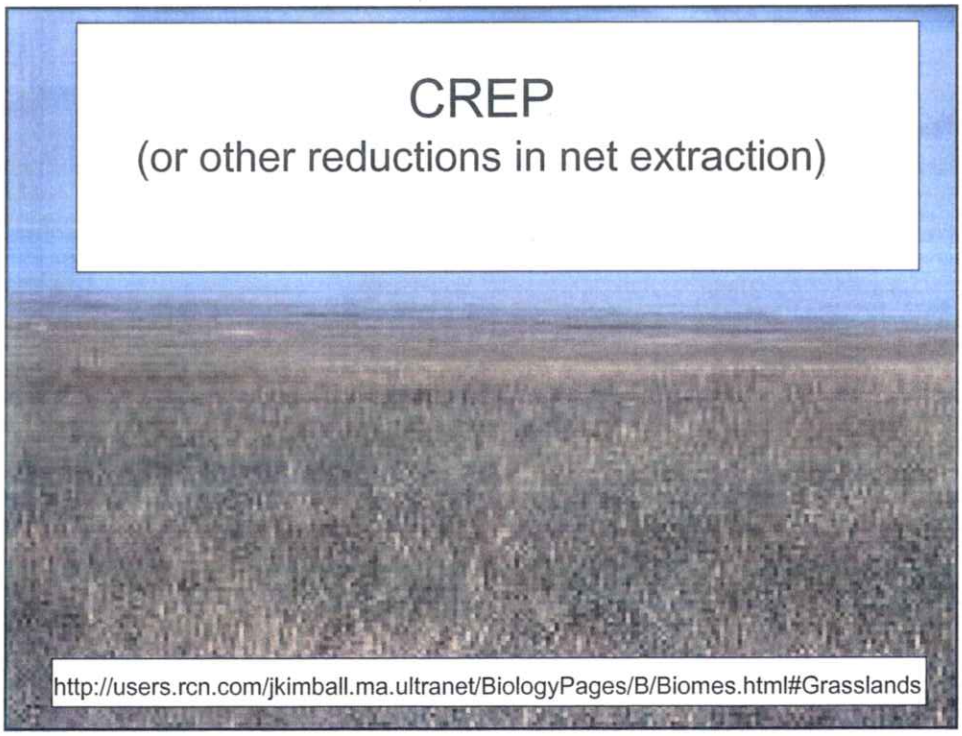


Recharge

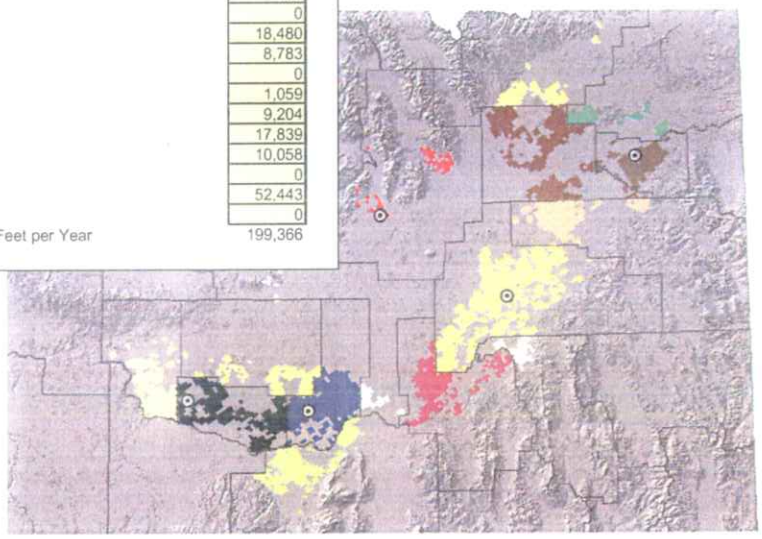
Location	Acre Feet/Year
Egin Bench	61,526
New Sweden	43,947
Aberdeen-Springfield	70,316
Northside & Milner-Gooding	232,989
Total Acre Feet per Year	408,778

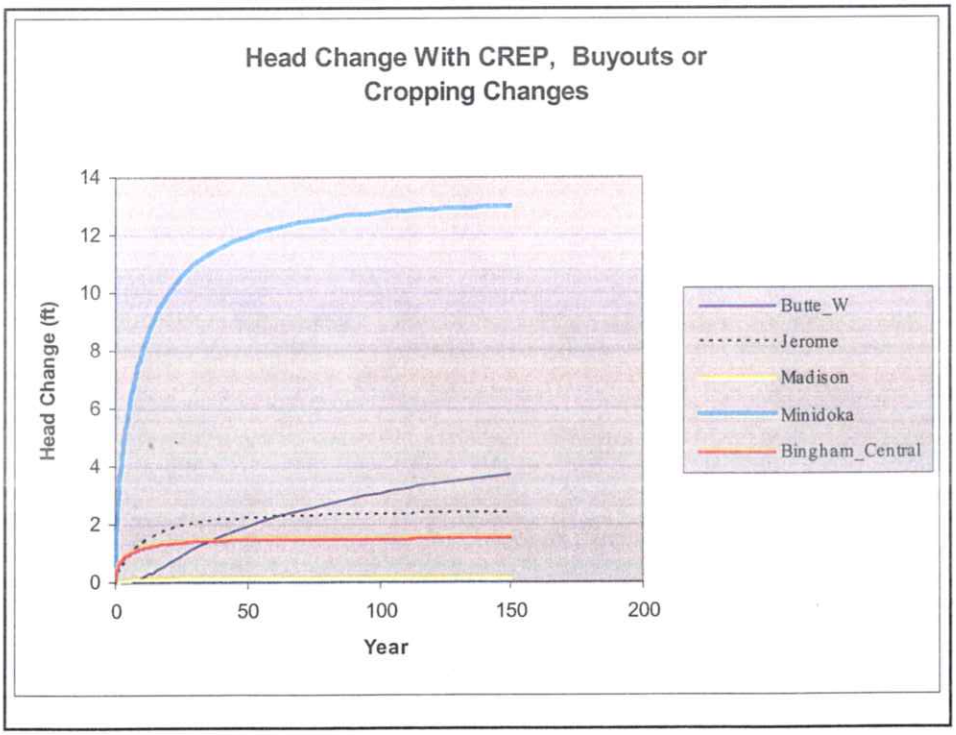



Head Change With Managed Recharge
Head Change (ft)
0
2
4
6
8
10
12
14
0
50
100
150
200
Year
Butte_W
Jerome
Madison
Minidoka
Bingham_Central

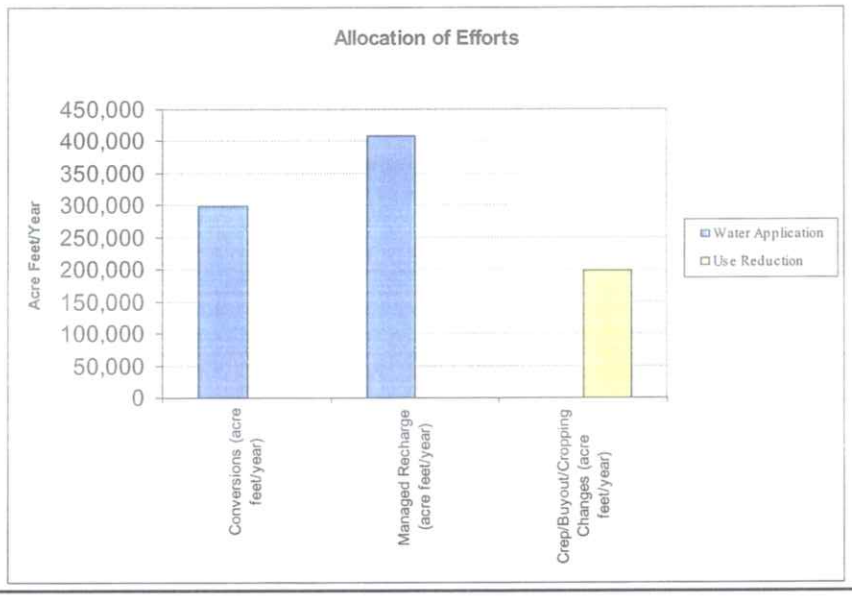

CREP
(or other reductions in net extraction)
http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/B/Biomes.html#Grasslands

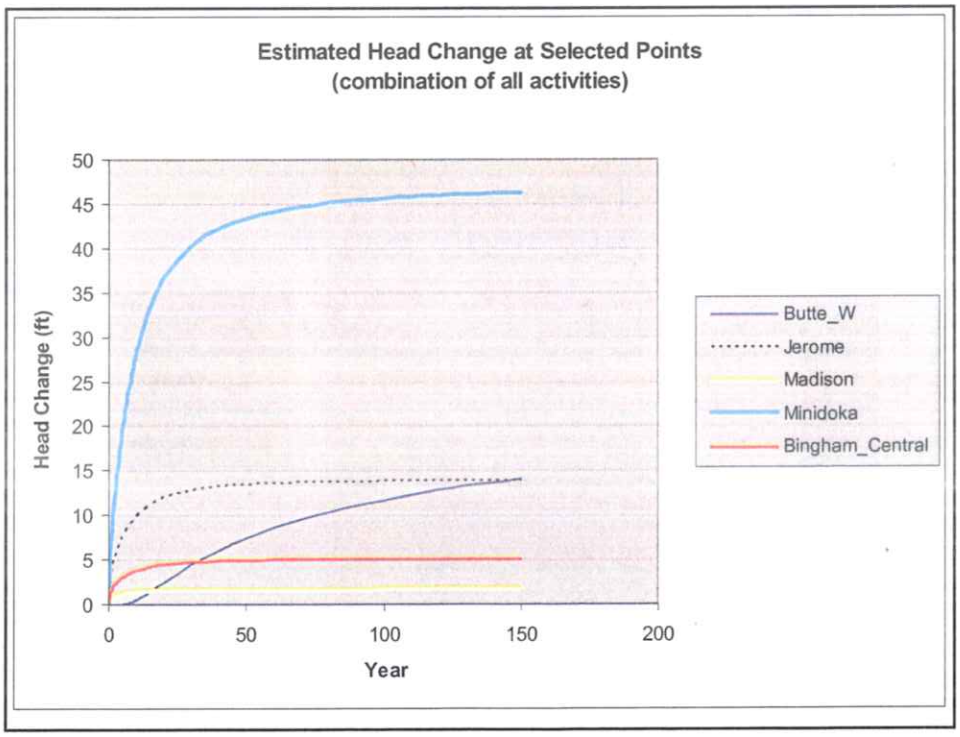
Location	Acre Feet/yr
Bannock	0
Bingham	80,040
Blaine	679
Bonneville	780
Butte	0
Cassia	18,480
Clark	8,783
Fremont	0
Gooding	1,059
Jefferson	9,204
Jerome	17,839
Lincoln	10,058
Madison	0
Minidoka	52,443
Power	0
Total Acre Feet per Year	199,366





Combined Effects





Combined Effects